Release notes for ENDF/B Development n-048_Cd_111 evaluation

April 26, 2017

- `linear` Errors:
  1. Negative cross section found
     0: Neg. Sig(E)

```
 Linearize ENDF/B Cross Sections (LINEAR 2015-1)
 ------------------------------------------------------------------------------
 Retrieval Criteria-----------        MAT
 Monitor Mode-----------------        Off
 Minimum Cross Section-------- 1.0000E-10 (Default Option)
... [66 more lines]
```

- `recent` Warnings:
  1. Statistical weight of certain L values were incorrect
     0: RRR goof (a)

```
 Calculate Cross Sections from Resonance Parameters (RECENT 2015-1)
 ==============================================================================
 Retrieval Criteria-----------        MAT
 File 2 Mimimum Cross Section- 1.0000E-10 (Standard Option)
 Reactions with No Background-     Output (Resonance Contribution)
... [563 more lines]
```

- `fudge-4.0` Warnings:
  1. Cross section does not match sum of linked reaction cross sections
     crossSectionSum label 0: total (Error # 0): CS Sum.

```
WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.17%
```

  2. Cross section does not match sum of linked reaction cross sections
     crossSectionSum label 1: (z,n) (Error # 0): CS Sum.

```
WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.11%
```

- `fudge-4.0` Errors:
  1. Calculated and tabulated Q values disagree.
     reaction label 13: n[multiplicity:'2'] + Cd110 + gamma (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -7406155.667877197 eV vs -6.9811e6 eV!
```

  2. Calculated and tabulated Q values disagree.
     reaction label 14: n[multiplicity:'3'] + Cd109 + gamma (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -17322039.03355408 eV vs -1.68662e7 eV!
```

  3. Calculated and tabulated Q values disagree.
     reaction label 15: n + H1 + Ag110 + gamma (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -9516248.015548706 eV vs -9091630. eV!
```

4. Calculated and tabulated Q values disagree.
   reaction label 16: n + H2 + Ag109 (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -14100881.73153687 eV vs -1.35916e7 eV!
   ```

5. Calculated and tabulated Q values disagree.
   reaction label 17: Cd112 + gamma (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: 8964006.858459473 eV vs 9395290. eV!
   ```

6. Calculated and tabulated Q values disagree.
   reaction label 18: n + He4 + Pd107 + gamma (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -3745150.64012146 eV vs -3.3049e6 eV!
   ```

7. Calculated and tabulated Q values disagree.
   reaction label 19: H1 + (Ag111_s ->Ag111 + gamma) (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -684762.5131835938 eV vs -245534. eV!
   ```

8. Calculated and tabulated Q values disagree.
   reaction label 20: H2 + Ag110_s (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -7291681.914611816 eV vs -6781510. eV!
   ```

9. Calculated and tabulated Q values disagree.
   reaction label 21: H3 + Ag109_s (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -7843648.790924072 eV vs -7406460. eV!
   ```

10. Calculated and tabulated Q values disagree.
    reaction label 22: He4 + (Pd108_s ->Pd108 + gamma) (Error # 0): Q mismatch

    ```
    WARNING: Calculated and tabulated Q-values disagree: 5482877.466995239 eV vs 5923190. eV!
    ```

- `njoy2012` Warnings:

  1. Message comes from several resonance types that do not support the calculation of angular distributions. Some of them can be used if `Want_SAMRL_RM or Want_SAMRML_BW are true.`
     reconr...reconstruct pointwise cross sections in pendf format (0): RECONR/calculation of angular distribution not installed (0)

     ```
      ---message from rdf2bw---calculation of angular distribution not installed.
        samm max legendre order:  0
     ```

  2. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
     groupr...compute self-shielded group-averaged cross-sections (0): GROUPR/conver (0)

     ```
      ---message from conver---cannot do complete particle production for mt= 16
                               only mf4/mf5 provided
     ```

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (1): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 17
                          only mf4/mf5 provided
```

4. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (2): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 22
                          only mf4/mf5 provided
```

5. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (3): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 28
                          only mf4/mf5 provided
```

6. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (4): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 32
                          only mf4/mf5 provided
```

7. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (5): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 91
                          only mf4/mf5 provided
```